

Activity Sheet 1: Calculating Interest Rates

Part 1: Using the following table, determine the value of a \$1,000 investment after three years when interest compounds annually. Use the supplied interest rates to compute values. (Round to the nearest whole number. Show your work.)

Example: **Year 1:** $\$1,000 \times 3\% (.03) = 30 + 1000 = 1,030$

Year 2: $1,030 \times .03 = 31 + 1,030 = 1,061$

Year 3: $1,061 \times .03 = 1,061 = 1,093$ (Three year total value)

Years to double: 72 divided by 3 = 24.

Amount Invested	Interest Rate	Three Year Total Value	Years to Double (Rule of 72)
1,000	3%		
1,000	5%		
1,000	8%		
1,000	10%		

Part 2: Using the following table, determine the value of a \$1,000 investment after three years, 5, 10, and 15 years when the interest rate remains the same.

Amount Invested	Interest Rate	Length of Investment	Amount Earned
1,000	6%	3 years	
1,000	6%	5 years	
1,000	6%	10 years	
1,000	6%	15 years	

- * How did computers taken in school related to the Public Relations Specialist's position?



- * How does the Public Relations Specialist use computers? **THINKING ALGEBRAICALLY**

- * You need to be good at estimating when you are working with stocks because you are working with so many decimals. Let's practice estimating with the buy orders in the tables below.

Why is it important to have computer skills?

- * First, write your estimated price per share and then your estimated number of shares. Next, write your best estimate for the total cost. At the end, go back and figure out how close your estimate is to the actual value. (An example is done for you.)

Price per Share		# of Shares		Estimated Total	Actual Total	What's the Difference?
	Estimate		Estimate			
\$48.75	\$50	195	200	\$10,000	\$9506.25	\$493.75
\$21.32		594				
\$9.76		10,041				
\$14.68		98				
\$33.02		4,051				
\$103.78		1,978				
\$88.97		71				
\$48.69		52				
\$22.08		395				
\$39.42		810				
\$28.73		152				
\$59.46		214				

- * Why is it important to have computer skills?

How can you help your class?

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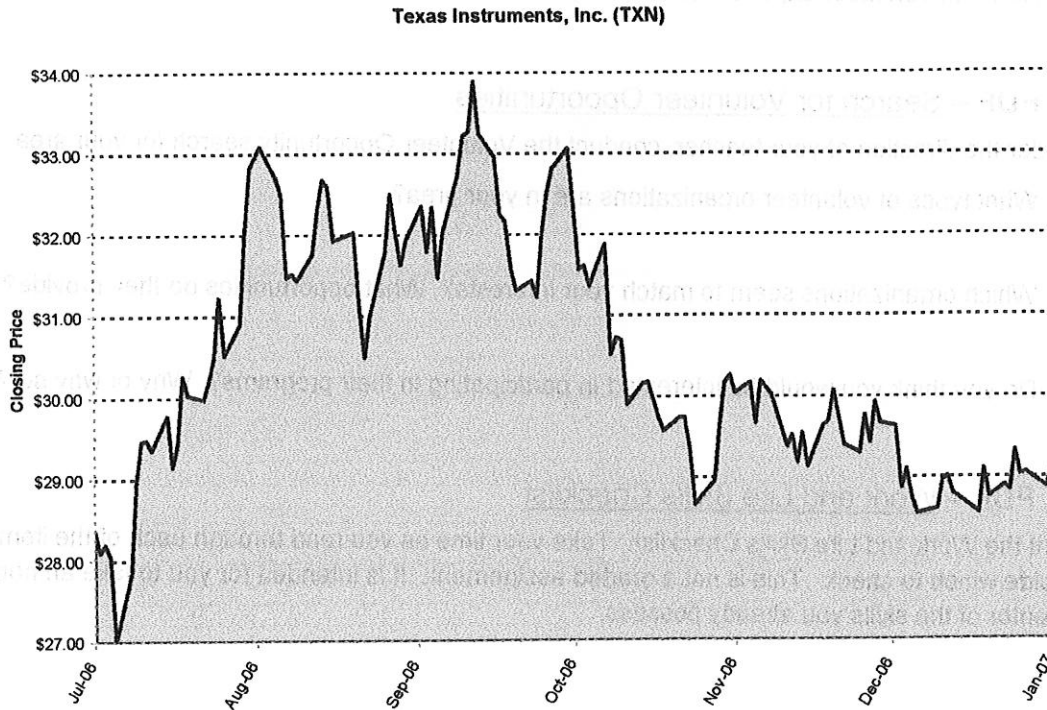
How can you help your class?

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INTERPRETING STATISTICS

This is a six-month graph of closing prices of Texas Instruments Corporation stock.



- If an investor bought the stock in the beginning of August, about how much did he/she pay?
- If the investor sold the stock in the beginning of September, about how much did he/she sell it for?
- How much profit/loss was incurred between the beginning of August and the beginning of September?
- If the investor had held onto the stock until the beginning of October, how much would he/she have sold the stock for?
- How much profit/loss was incurred between the beginning of August and the beginning of October?

COMMUNICATING QUANTITATIVE INFORMATION

This is a list of closing prices for Motorola Inc. (MOT) from December 13, 2006 to January 13, 2007.

Date	Closing Price
12-Jan-07	\$18.01
11-Jan-07	\$18.20
10-Jan-07	\$18.16
9-Jan-07	\$18.26
8-Jan-07	\$18.60
5-Jan-07	\$18.94
4-Jan-07	\$20.55
3-Jan-07	\$20.57
29-Dec-06	\$20.56
28-Dec-06	\$20.55
27-Dec-06	\$20.55
26-Dec-06	\$20.48
22-Dec-06	\$20.26
21-Dec-06	\$20.32
20-Dec-06	\$20.41
19-Dec-06	\$20.49
18-Dec-06	\$20.76
15-Dec-06	\$20.71
14-Dec-06	\$20.69
13-Dec-06	\$20.65

1. Create a graph that displays the one-month trend of the stock's closing price.
2. Write a short description of the trend in closing prices.
3. What is the lowest price shown on the graph? Circle and label this point.
4. What is the highest price shown on the graph? Circle and label this point.
5. Between which two days did the price of the stock grow the most?

TACKLING COMPLEX PROBLEMS

Calculate the value of the following portfolios:

Team A

Stocks	Quantity	Price per Share	Value
The Coca-Cola Company (KO)	200	\$48.26	
Google (GOOG)	52	\$489.75	
3M Company (MMM)	100	\$79.25	
Ocean Bio-Chem Inc. (OBCI)	6000	\$4.40	
InSite Vision Incorporated (ISV)	7000	\$1.50	
Total Value of Stocks Purchased			
Commission Charged for Purchase			
Cash on Hand			
Current Value of Portfolio			

Team B

Stocks	Quantity	Price per Share	Value
Exxon Mobil Corporation (XOM)	400	\$73.53	
Apple Incorporated (AAPL)	650	\$88.50	
Biogen Idec Incorporated (BIIB)	200	\$51.84	
American Express Company (AXP)	115	\$58.09	
Tiffany & Co. (TIF)	320	\$40.04	
Total Value of Stocks Purchased			
Commission Charged for Purchase			
Cash on Hand			
Current Value of Portfolio			

INTERPRETING STATISTICS

This is a table of the federal interest rate for the same years. (Source: www.federalreserve.gov)

Year	Interest Rate
1997	8.44%
1998	8.35%
1999	8.00%
2000	9.23%
2001	6.91%
2002	4.67%
2003	4.12%
2004	4.34%
2005	6.19%
2006	7.96%

1. Use the table above calculate the rate of return of the Dow Jones Industrial Average for each one year period.
2. For which year was the rate of return from the Dow Jones the greatest?
3. For which year was the rate of return from Dow Jones the smallest?
4. For which years would it have been better to invest some money in the stock market rather than all the money in the bank? Why?

INTERPRETING STATISTICS

Below is a table of the Dow Jones Industrial Average Yearly closing prices from 1997 to 2006. (source: www.djindexes.com)

Calculate the rate of return for each one-year period. Use the following formula:

$$\text{Rate of return} = \frac{(\text{price}) - (\text{price_year_before})}{\text{price_year_before}}$$

Trade	Price	Rate of Return
December 1997	\$7,908.25	%
December 1998	\$9,181.43	%
December 1999	\$11,497.12	%
December 2000	\$10,787.99	%
December 2001	\$10,021.57	%
December 2002	\$8,341.63	%
December 2003	\$10,453.92	%
December 2004	\$10,783.01	%
December 2005	\$10,717.50	%
December 2006	\$12,463.15	%

THINKING ALGEBRAICALLY

In this activity you will learn a quick way to calculate the value of an investment.

1. Complete the following table:

Investor	Principal	Annual rate of Return	Money Earned After One Year	Total Equity
Tom	\$300	6%		
Sean	\$200	3%		
Darryl	\$1,300	2%		
Anne	\$180	9%		
Suki	\$70	7%		
Elena	\$1,000	5%		
Nico	\$382	4%		
Jennifer	\$4,000	8%		
Raul	\$X	4%		
Jason	\$X	7%		

2. Write a description of the calculation you do each time you want to calculate the total investment.

3. Write a formula to express that calculation you just described.